

SEQUENCE LISTING

5 <110> BASF Aktiengesellschaft

10 <120> Clp-protease as target for herbicides

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20 <170> PatentIn version 3.1

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| | | | 50 | | | | | 55 | | | | 60 | | | | | |
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| | Lys | Leu | Phe | Ile | Asn | Ser | Pro | Gly | Gly | Ser | Leu | Ser | Ala | Thr | Met | Ala | |
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| 40 | ata | tac | gat | gtg | gtt | cag | ott | gtg | aga | gct | gat | gtt | tcg | acg | att | gct | 479 |
| | Ile | Tyr | Asp | Val | Val | Gln | Leu | Val | Arg | Ala | Asp | Val | Ser | Thr | Ile | Ala | |
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| 45 | ctt | ggc | att | gct | gca | tca | aca | gct | tcg | att | att | ctt | ggc | gcg | gga | act | 527 |
| | Leu | Gly | Ile | Ala | Ala | Ser | Thr | Ala | Ser | Ile | Ile | Leu | Gly | Ala | Gly | Thr | |
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| | Pro | Leu | Gly | Gly | Ala | Ser | Gly | Gln | Ala | Ile | Asp | Val | Glu | Ile | Gln | Ala | |
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| 60 | aag | gaa | gtt | atg | cat | aac | aag | aac | aat | gtc | acc | agc | att | atc | gcg | gga | 671 |
| | Lys | Glu | Val | Met | His | Asn | Lys | Asn | Asn | Val | Thr | Ser | Ile | Ile | Ala | Gly | |
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| 65 | tgt | act | agt | cga | tcg | ttt | gag | cag | gtt | ctg | aaa | gat | att | gat | agg | gac | 719 |
| | Cys | Thr | Ser | Arg | Ser | Phe | Glu | Gln | Val | Leu | Lys | Asp | Ile | Asp | Arg | Asp | |
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| 70 | cgg | tac | atg | tct | cca | att | gaa | gca | gtt | gag | tat | ggc | tta | att | gat | gga | 767 |
| | Arg | Tyr | Met | Ser | Pro | Ile | Glu | Ala | Val | Glu | Tyr | Gly | Leu | Ile | Asp | Gly | |
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| 75 | gtt | att | gat | gga | gac | agc | att | att | cct | ctt | gaa | cct | gtt | cct | gat | aga | 815 |
| | Val | Ile | Asp | Gly | Asp | Ser | Ile | Ile | Pro | Leu | Glu | Pro | Val | Pro | Asp | Arg | |
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| | Asn Pro Ile Arg Arg Ile Val Ser Ala Leu Gln Ser Pro Tyr Gly Asp | |
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| | Ala Ser Ile Asp Asp Lys Ser Asp Ile Leu Met Tyr Leu Asn Cys Pro | |
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| | Ile Lys Pro Lys Val Gly Thr Val Ala Phe Gly Val Ala Ala Ser Gln | |
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| | Pro Asn Thr Arg Val Met Ile His Gln Pro Gln Thr Gly Cys Gly Gly | |
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| | 210 215 220 | |
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| | Gln Lys Ile Asp Arg Met Tyr Ala Ala Phe Thr Gly Gln Pro Leu Glu | |
| | 225 230 235 240 | |
| 80 | aaa gtg cag caa tac act gaa aga gat cgt ttc tta tca gca tct gag | 828 |
| | Lys Val Gln Gln Tyr Thr Glu Arg Asp Arg Phe Leu Ser Ala Ser Glu | |
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 60 Gly Gly Ser Thr Tyr Ser Val Leu Thr Ile Tyr Asp Cys Met Ser Trp
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Gln Lys Ile Asp Arg Met Tyr Ala Ala Phe Thr Gly Gln Pro Leu Glu
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Val Thr Glu Asn Arg Glu Leu Gly Ser Gly Lys Ser Thr Phe Ile Ser
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60 agt ccc aat ttc tcc ttt gca act tct gtt cac agt tgc agg cca aac 145
Ser Pro Asn Phe Ser Phe Ala Thr Ser Val His Ser Cys Arg Pro Asn
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| 10 | gac aac tat aaa agt gcc cct cag tat ctt tac ggc ctt agt cct tca | 289 |
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| 15 | cag atg gat atg ttc atg aca gaa gat aac cca gta cgg cga cag tca | 337 |
| | Gln Met Asp Met Phe Met Thr Glu Asp Asn Pro Val Arg Arg Gln Ser | |
| | 100 105 110 | |
| 20 | gaa agt gcc act gag gat agt ata tct tca gcc aat aac tat ctg agc | 385 |
| | Glu Ser Ala Thr Glu Asp Ser Ile Ser Ser Ala Asn Asn Tyr Leu Ser | |
| | 115 120 125 | |
| 25 | aat ggt gga atg tgg agt atg tcc ggc atg aac gat cgg ggc ccc tcg | 433 |
| | Asn Gly Gly Met Trp Ser Met Ser Gly Met Asn Asp Arg Gly Pro Ser | |
| | 130 135 140 | |
| 30 | aaa tac agt atg agt gtc agc atg tac cgt gga gga aca aga gga tct | 481 |
| | Lys Tyr Ser Met Ser Val Ser Met Tyr Arg Gly Gly Thr Arg Gly Ser | |
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| 35 | gga aga cct cga act gcg cct cct gat ttg cca tct ttg ctt ttg gat | 529 |
| | Gly Arg Pro Arg Thr Ala Pro Pro Asp Leu Pro Ser Leu Leu Leu Asp | |
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| 40 | gct cga att gtc tat ctg ggc atg cct att gta cca gct gtt aca gag | 577 |
| | Ala Arg Ile Val Tyr Leu Gly Met Pro Ile Val Pro Ala Val Thr Glu | |
| | 180 185 190 | |
| 45 | ctt ctt gtt gct cag ttt atg tgg ttg gat tat gac aat cca tca aag | 625 |
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| | Gly Gln Ala Ala Met Leu Leu Ser Leu Gly Lys Lys Gly Phe Arg Ala | |
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| 70 | atg cag cca aat tca tct aca aaa ttg tat tta cct aaa gtc agc aaa | 865 |
| | Met Gln Pro Asn Ser Ser Thr Lys Leu Tyr Leu Pro Lys Val Ser Lys | |
| | 275 280 285 | |
| 75 | tcc agt gga gca gtg ata gat atg tgg atc agg gcc aaa gaa cta gat | 913 |
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| | 325 330 335 | |
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| | 340 345 350 | |
| 10 | aga gac aat gca ttt gag aaa agg aac tat ggt gag ata ctc gcc caa | 1105 |
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| 20 | Gly Ser Arg | |
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| | 65 70 75 80 | |

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| | | | 275 | | | | | 280 | | | | | 285 | | | | |
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| 75 | Pro | Lys | Glu | Glu | Ile | Glu | Lys | Asp | Ile | Gln | Arg | Pro | Lys | Tyr | Leu | Arg | |
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90 95 100

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| 10 | cca cca gac ttg cca tct atg ctt ctt gac ggg aga att gtt tac att | 439 |
| | Pro Pro Asp Leu Pro Ser Met Leu Leu Asp Gly Arg Ile Val Tyr Ile | |
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| 15 | gga atg cct ctt gtg ccg gca gtg act gag cta gtt gtc gct gag cta | 487 |
| | Gly Met Pro Leu Val Pro Ala Val Thr Glu Leu Val Val Ala Glu Leu | |
| | 135 140 145 150 | |
| 20 | atg tat ctt cag tgg ctg gat ccc aag gaa ccc att tac att tac atc | 535 |
| | Met Tyr Leu Gln Trp Leu Asp Pro Lys Glu Pro Ile Tyr Ile Tyr Ile | |
| | 155 160 165 | |
| 25 | aac tcc aca ggg acc act cgt gat gat gga gag acg gtt gga atg gaa | 583 |
| | Asn Ser Thr Gly Thr Thr Arg Asp Asp Gly Glu Thr Val Gly Met Glu | |
| | 170 175 180 | |
| 30 | tca gaa ggg ttt gcg atc tat gac tct ttg atg caa ctt aaa aac gag | 631 |
| | Ser Glu Gly Phe Ala Ile Tyr Asp Ser Leu Met Gln Leu Lys Asn Glu | |
| | 185 190 195 | |
| 35 | gta cat aca gta tgt gtg gga gca gcc ata ggt cag gcc tgt cta tta | 679 |
| | Val His Thr Val Cys Val Gly Ala Ala Ile Gly Gln Ala Cys Leu Leu | |
| | 200 205 210 | |
| 40 | ctt tct gcg gga acc aag ggt aaa cgg ttt atg atg cca cat gcc aaa | 727 |
| | Leu Ser Ala Gly Thr Lys Gly Lys Arg Phe Met Met Pro His Ala Lys | |
| | 215 220 225 230 | |
| 45 | gcg atg att cag caa cca cgt gta cct tct tct ggg ttg atg cct gcc | 775 |
| | Ala Met Ile Gln Gln Pro Arg Val Pro Ser Ser Gly Leu Met Pro Ala | |
| | 235 240 245 | |
| 50 | agt gat gtc ctg att cgg gcc aaa gag gtc att aca aat agg gat ata | 823 |
| | Ser Asp Val Leu Ile Arg Ala Lys Glu Val Ile Thr Asn Arg Asp Ile | |
| | 250 255 260 | |
| 55 | ctt gtg gaa cta cta tca aag cat act ggg aat tcc gtg gag act gta | 871 |
| | Leu Val Glu Leu Leu Ser Lys His Thr Gly Asn Ser Val Glu Thr Val | |
| | 265 270 275 | |
| 60 | gct aac gta atg aga agg cca tat tac atg gat gca cca aaa gct aaa | 919 |
| | Ala Asn Val Met Arg Arg Pro Tyr Tyr Met Asp Ala Pro Lys Ala Lys | |
| | 280 285 290 | |
| 65 | gaa ttt gga gtc att gac agg att ctt tgg cgc ggt caa gaa aag att | 967 |
| | Glu Phe Gly Val Ile Asp Arg Ile Leu Trp Arg Gly Gln Glu Lys Ile | |
| | 295 300 305 310 | |
| 70 | att gcg gac gtg gtt cct tca gag gaa ttc gac aag aat gca ggg att | 1015 |
| | Ile Ala Asp Val Val Pro Ser Glu Glu Phe Asp Lys Asn Ala Gly Ile | |
| | 315 320 325 | |
| 75 | aaa agc gta gta tga gtctagtctt aagttttctt ggcctaaatc atactgcgtc | 1070 |
| | Lys Ser Val Val | |
| | 330 | |
| 80 | atggagaaga acaaataagac tgaccaaaat cacattggcc gcagactgcc ttgtttcaaa | 1130 |
| | tcacttggtta aatgtgaaca tgcgattagg agaatcatatc ttaaaggatc ttgaaatatt | 1190 |

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Ser Ser Phe Ser Pro His Pro Pro Leu Ser Ser Asn Ser Ser Gly Arg
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Arg Asn Leu Lys Thr Phe Arg Tyr Ala Phe Arg Ala Lys Ala Ser Ala
35 40 45

30

Lys Ile Pro Met Pro Pro Ile Asn Pro Lys Asp Pro Phe Leu Ser Thr
50 55 60

35

Leu Ala Ser Ile Ala Ala Asn Ser Pro Glu Lys Leu Leu Asn Arg Pro
65 70 75 80

Val Asn Ala Asp Val Pro Pro Tyr Leu Asp Ile Phe Asp Ser Pro Gln
85 90 95

40

Leu Met Ser Ser Pro Ala Gln Val Glu Arg Ser Val Ala Tyr Asn Glu
100 105 110

45

His Arg Pro Arg Thr Pro Pro Pro Asp Leu Pro Ser Met Leu Leu Asp
115 120 125

50

Gly Arg Ile Val Tyr Ile Gly Met Pro Leu Val Pro Ala Val Thr Glu
130 135 140

55

Leu Val Val Ala Glu Leu Met Tyr Leu Gln Trp Leu Asp Pro Lys Glu
145 150 155 160

Pro Ile Tyr Ile Tyr Ile Asn Ser Thr Gly Thr Thr Arg Asp Asp Gly
165 170 175

60

Glu Thr Val Gly Met Glu Ser Glu Gly Phe Ala Ile Tyr Asp Ser Leu
180 185 190

Met Gln Leu Lys Asn Glu Val His Thr Val Cys Val Gly Ala Ala Ile
 195 200 205

5 Gly Gln Ala Cys Leu Leu Leu Ser Ala Gly Thr Lys Gly Lys Arg Phe
 210 215 220

10 Met Met Pro His Ala Lys Ala Met Ile Gln Gln Pro Arg Val Pro Ser
 225 230 235 240

15 Ser Gly Leu Met Pro Ala Ser Asp Val Leu Ile Arg Ala Lys Glu Val
 245 250 255

Ile Thr Asn Arg Asp Ile Leu Val Glu Leu Leu Ser Lys His Thr Gly
 260 265 270

20 Asn Ser Val Glu Thr Val Ala Asn Val Met Arg Arg Pro Tyr Tyr Met
 275 280 285

25 Asp Ala Pro Lys Ala Lys Glu Phe Gly Val Ile Asp Arg Ile Leu Trp
 290 295 300

30 Arg Gly Gln Glu Lys Ile Ile Ala Asp Val Val Pro Ser Glu Glu Phe
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35 Asp Lys Asn Ala Gly Ile Lys Ser Val Val
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 Met Glu Val Ala Ala Thr Ala Thr Ser Phe Thr Thr Leu Arg
 1 5 10 15

gct cgt acg tca gcg att atc ccg tct tct aca cgt aat ctg aga tct 158

23

| | | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Ala | Arg | Thr | Ser | Ala | Ile | Ile | Pro | Ser | Ser | Thr | Arg | Asn | Leu | Arg | Ser | |
| | | | | 20 | | | | | | 25 | | | | | 30 | | |
| 5 | aaa | ccg | aga | ttt | tct | tca | tct | tca | tct | ctc | aga | gct | tct | ctt | tcg | aat | 206 |
| | Lys | Pro | Arg | Phe | Ser | Ser | Ser | Ser | Ser | Leu | Arg | Ala | Ser | Leu | Ser | Asn | |
| | | | | 35 | | | | | 40 | | | | | 45 | | | |
| 10 | ggc | ttt | ctt | tgc | ccg | tat | acc | gga | gga | agc | atc | tct | agt | gac | tta | tgc | 254 |
| | Gly | Phe | Leu | Ser | Pro | Tyr | Thr | Gly | Gly | Ser | Ile | Ser | Ser | Asp | Leu | Cys | |
| | | | 50 | | | | | 55 | | | | | 60 | | | | |
| 15 | ggc | gct | aag | ctt | cgt | gcg | gaa | tgc | ctt | aat | ccg | tta | aat | ttt | tcc | agt | 302 |
| | Gly | Ala | Lys | Leu | Arg | Ala | Glu | Ser | Leu | Asn | Pro | Leu | Asn | Phe | Ser | Ser | |
| | | 65 | | | | | 70 | | | | 75 | | | | | | |
| 20 | tcc | aag | cct | aaa | cgc | gga | gtt | gtc | act | atg | gtt | ata | cct | ttc | tca | aag | 350 |
| | Ser | Lys | Pro | Lys | Arg | Gly | Val | Val | Thr | Met | Val | Ile | Pro | Phe | Ser | Lys | |
| | 80 | | | | | 85 | | | | 90 | | | | | | 95 | |
| 25 | gga | agt | gca | cac | gaa | caa | cct | cct | cct | gat | ttg | gca | tca | tat | ttg | ttc | 398 |
| | Gly | Ser | Ala | His | Glu | Gln | Pro | Pro | Pro | Asp | Leu | Ala | Ser | Tyr | Leu | Phe | |
| | | | | 100 | | | | | | 105 | | | | | 110 | | |
| 30 | aag | aac | cga | att | gta | tat | ttg | gga | atg | tct | ctc | gta | cct | tca | gtt | act | 446 |
| | Lys | Asn | Arg | Ile | Val | Tyr | Leu | Gly | Met | Ser | Leu | Val | Pro | Ser | Val | Thr | |
| | | | | 115 | | | | | 120 | | | | | 125 | | | |
| 35 | gag | ttg | ata | ctt | gcg | gag | ttt | ctt | tac | ctt | cag | tat | gaa | gac | gag | gaa | 494 |
| | Glu | Leu | Ile | Leu | Ala | Glu | Phe | Leu | Tyr | Leu | Gln | Tyr | Glu | Asp | Glu | Glu | |
| | | | 130 | | | | | 135 | | | | | 140 | | | | |
| 40 | aag | cct | att | tac | ctt | tac | ata | aac | tgc | act | ggg | aca | acc | aag | aat | ggc | 542 |
| | Lys | Pro | Ile | Tyr | Leu | Tyr | Ile | Asn | Ser | Thr | Gly | Thr | Thr | Lys | Asn | Gly | |
| | | 145 | | | | | 150 | | | | | 155 | | | | | |
| 45 | gaa | aag | ttg | ggc | tat | gat | act | gag | gct | ttt | gca | atc | tat | gat | gtc | atg | 590 |
| | Glu | Lys | Leu | Gly | Tyr | Asp | Thr | Glu | Ala | Phe | Ala | Ile | Tyr | Asp | Val | Met | |
| | 160 | | | | | 165 | | | | 170 | | | | | | 175 | |
| 50 | ggg | tat | gtc | aaa | cca | cca | atc | ttt | act | ctt | tgc | gtc | ggg | aat | gcg | tgg | 638 |
| | Gly | Tyr | Val | Lys | Pro | Pro | Ile | Phe | Thr | Leu | Cys | Val | Gly | Asn | Ala | Trp | |
| | | | | 180 | | | | | | 185 | | | | | 190 | | |
| 55 | ggc | gaa | gct | gct | ttg | ctt | ctg | act | gct | ggc | gca | aaa | gga | aat | cga | tct | 686 |
| | Gly | Glu | Ala | Ala | Leu | Leu | Leu | Thr | Ala | Gly | Ala | Lys | Gly | Asn | Arg | Ser | |
| | | | | 195 | | | | 200 | | | | | | 205 | | | |
| 60 | gcg | ttg | ccc | tca | tca | act | att | atg | ata | aag | cag | ccc | att | gct | cga | ttt | 734 |
| | Ala | Leu | Pro | Ser | Ser | Thr | Ile | Met | Ile | Lys | Gln | Pro | Ile | Ala | Arg | Phe | |
| | | | 210 | | | | | 215 | | | | | 220 | | | | |
| 65 | caa | ggc | caa | gca | act | gat | gtt | gaa | att | gca | agg | aaa | gaa | atc | aag | cac | 782 |
| | Gln | Gly | Gln | Ala | Thr | Asp | Val | Glu | Ile | Ala | Arg | Lys | Glu | Ile | Lys | His | |
| | | 225 | | | | | 230 | | | | | 235 | | | | | |
| 70 | ata | aag | aca | gaa | atg | gtc | aag | ctg | tat | tca | aag | cat | att | ggc | aaa | tcc | 830 |
| | Ile | Lys | Thr | Glu | Met | Val | Lys | Leu | Tyr | Ser | Lys | His | Ile | Gly | Lys | Ser | |
| | 240 | | | | | 245 | | | | 250 | | | | | | 255 | |
| 75 | ccg | gag | cag | att | gaa | gct | gac | atg | aaa | cgc | ccg | aaa | tat | ttt | agt | ccc | 878 |
| | Pro | Glu | Gln | Ile | Glu | Ala | Asp | Met | Lys | Arg | Pro | Lys | Tyr | Phe | Ser | Pro | |
| | | | | 260 | | | | | | 265 | | | | | | 270 | |
| 80 | act | gag | gct | gtt | gaa | tat | ggg | atc | att | gat | aag | gtg | gtt | tac | aat | gaa | 926 |

Thr Glu Ala Val Glu Tyr Gly Ile Ile Asp Lys Val Val Tyr Asn Glu
 275 280 285

5 agg ggc agc caa gac aga gga gtt gtg tct gac ctt aaa aag gca caa 974
 Arg Gly Ser Gln Asp Arg Gly Val Val Ser Asp Leu Lys Lys Ala Gln
 290 295 300

10 ctc att tga atgtcagaac tgtcttccga aatcccatga ttaacaggtt 1023
 Leu Ile
 305

ggagatctta ccgctgatca aatgggggaat cagtgaacca ttcaccggca cagaactgag 1083

15 gtaaagtctg gaaaacatgt taaaaaagggt tactagtaat gctgcaattg taggggttatt 1143
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40 Pro Arg Phe Ser Ser Ser Ser Ser Leu Arg Ala Ser Leu Ser Asn Gly
 35 40 45

45 Phe Leu Ser Pro Tyr Thr Gly Gly Ser Ile Ser Ser Asp Leu Cys Gly
 50 55 60

50 Ala Lys Leu Arg Ala Glu Ser Leu Asn Pro Leu Asn Phe Ser Ser Ser
 65 70 75 80

55 Lys Pro Lys Arg Gly Val Val Thr Met Val Ile Pro Phe Ser Lys Gly
 85 90 95

Ser Ala His Glu Gln Pro Pro Pro Asp Leu Ala Ser Tyr Leu Phe Lys
 100 105 110

60 Asn Arg Ile Val Tyr Leu Gly Met Ser Leu Val Pro Ser Val Thr Glu
 115 120 125

25

Leu Ile Leu Ala Glu Phe Leu Tyr Leu Gln Tyr Glu Asp Glu Glu Lys
 130 135 140

5 Pro Ile Tyr Leu Tyr Ile Asn Ser Thr Gly Thr Thr Lys Asn Gly Glu
 145 150 155 160

10 Lys Leu Gly Tyr Asp Thr Glu Ala Phe Ala Ile Tyr Asp Val Met Gly
 165 170 175

15 Tyr Val Lys Pro Pro Ile Phe Thr Leu Cys Val Gly Asn Ala Trp Gly
 180 185 190

Glu Ala Ala Leu Leu Leu Thr Ala Gly Ala Lys Gly Asn Arg Ser Ala
 195 200 205

20 Leu Pro Ser Ser Thr Ile Met Ile Lys Gln Pro Ile Ala Arg Phe Gln
 210 215 220

25 Gly Gln Ala Thr Asp Val Glu Ile Ala Arg Lys Glu Ile Lys His Ile
 225 230 235 240

30 Lys Thr Glu Met Val Lys Leu Tyr Ser Lys His Ile Gly Lys Ser Pro
 245 250 255

35 Glu Gln Ile Glu Ala Asp Met Lys Arg Pro Lys Tyr Phe Ser Pro Thr
 260 265 270

Glu Ala Val Glu Tyr Gly Ile Ile Asp Lys Val Val Tyr Asn Glu Arg
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40 Gly Ser Gln Asp Arg Gly Val Val Ser Asp Leu Lys Lys Ala Gln Leu
 290 295 300

45 Ile
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 Asn Glu Ala Lys Glu Lys Gly Ser Ser
 230 235

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<211> 237

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Thr Pro Leu Asn Ser Ser Lys Arg Phe Tyr Gly Val Ile Pro Met Val
 20 25 30

35

Ile Glu His Ser Ser Arg Gly Glu Arg Ala Tyr Asp Ile Phe Ser Arg
 35 40 45

40

Leu Leu Lys Glu Arg Ile Ile Cys Ile Asn Gly Pro Ile Asp Asp Ser
 50 55 60

45

Thr Ser His Val Val Val Ala Gln Leu Leu Phe Leu Glu Ser Glu Asn
 65 70 75 80

50

Pro Ser Lys Pro Ile His Lys Tyr Leu Asn Ser Pro Gly Gly Ala Val
 85 90 95

55

Thr Ala Gly Leu Ala Ile Tyr Asp Thr Thr Gln Tyr Ile Arg Ser Pro
 100 105 110

60

Ile His Thr Ile Cys Leu Gly Gln Ala Ala Ser Met Gly Ser Leu Leu
 115 120 125

Leu Ala Ala Gly Ala Lys Gly Glu Arg Arg Ser Leu Pro Asn Ala Ser
 130 135 140

Val Met Ile His Gln Pro Phe Gly Gly Tyr Ser Gly Gln Ala Lys Asp
 145 150 155 160

Leu Thr Ile His Thr Lys Gln Ile Val Arg Val Trp Asp Thr Leu Asn
 165 170 175

5 Asp Leu Tyr Ala Lys His Thr Gly Gln Pro Ile Glu Ile Ile Gln Lys
 180 185 190

10 Asn Met Asp Arg Asp Tyr Phe Met Thr Pro Glu Glu Ala Lys Glu Phe
 195 200 205

15 Gly Ile Ile Asp Glu Val Ile Asp Glu Arg Pro Met Ala Leu Val Thr
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Asp Ala Val Ala Asn Glu Ala Lys Glu Lys Gly Ser Ser
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 35 tccatctggc ttcaggtgac tggaagagcg gtaatggtcc caaactttca ggaacaactg 180
 ttgttccctt atagtttoga ggaacaaagt tgctggttac ttggtctgtg ccggtataat 240
 40 gtaactggga caaagaacat attgtagaaa ccttgtttga gctgtgaagt ataggggttt 300
 tacaactatt atgcacaggt ctgcaaagag taccataat gtcaattggt tgtaccagta 360
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 45 ttttctttta tcatgttcag cgccgc 447

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55 <213> Nicotiana tabacum

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 tccatctggc ttcaggtgac tggaagagcg gtaatggtcc caaactttca ggaacaactg 180

| | | |
|----|--|-----|
| | ttgttccctt atagtttoga ggaacaaagt tgctgggttac ttggtctgtg ccggtataat | 240 |
| 5 | gtaactggga caaagaacat attgtagaaa ccttgtttga gctgtgaagt ataggggttt | 300 |
| | tacaactatt atgcacaggt ctgcaaagag tacccataat gtcaattggt tgtaccaggc | 360 |
| | ggccgctggc ttcttctttg cttctctctc cgctttctag ctcgacgggt actgaaaatc | 420 |
| 10 | gcgagctggg ttctggtaaa tcaactttca tatccagtcc caatttctcc tttgcaactt | 480 |
| | ctgttcacag ttgcaggcca aacggcggtc gaggttattg ttacaggtct ccggtagcta | 540 |
| 15 | agtctttgga ccatataccc caaaaattca gactggaaaa tctcaaagat ggactactgg | 600 |
| | acaactataa aagtgcacct cagtatcttt acggccttag tccttcacag atggatatgt | 660 |
| | tcatgacaga agataaccca gtacggcgac agtcagaaaag tgccactgag gatagtatat | 720 |
| 20 | ctgcggccgc tggcagatgc tccacgaarg gataccacag caggtcttgg ttagtccata | 780 |
| | cacatcgtat aatttatggc tgatagtggg tgtacgactt gcagtgttat tttgcaattt | 840 |
| 25 | cttttgttta atctacatat tgaactcttt tgatctactt attcaaaaac atgaaatcct | 900 |
| | gagcagacta gatgcatttg tttaatatca tgaatgcaag gaatccacct acagctgata | 960 |
| | tgtatacaaa gatacctttt tttcaagagc ggccgc | 996 |
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| 35 | <212> DNA | |
| | <213> Nicotiana tabacum | |
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| 45 | <222> (2)..(193) | |
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| | Arg Pro Leu Glu Asp Val Arg Arg Gln Val Asn Glu Ala Val Gln Pro | |
| | 1 5 10 15 | |
| 55 | cgt cat aaa atc gac aag atg tat gtc gcc ttt act gac caa cca att | 97 |
| | Arg His Lys Ile Asp Lys Met Tyr Val Ala Phe Thr Asp Gln Pro Ile | |
| | 20 25 30 | |
| 60 | gag aag gtg caa cag tac act gaa agg gat cgt ttt ttg tct gtc tca | 145 |
| | Glu Lys Val Gln Gln Tyr Thr Glu Arg Asp Arg Phe Leu Ser Val Ser | |
| | 35 40 45 | |
| | gag gcc atg gag ttt ggt ctc ata gat ggg gtg cta gaa aca gaa tac | 193 |

Glu Ala Met Glu Phe Gly Leu Ile Asp Gly Val Leu Glu Thr Glu Tyr
 50 55 60

5 tagttgcaaa tgaatcttta gtagtacatg gtagctagcc ttccaatgac gaaaaagctg 253
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 10 aaagcgctct tgttttacta tttttgtctc tcctgcagat aactcagca cttttgtggg 433
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 15 acacaaagca gattcaggaa gatgtgtatt tttcccaa atattact ccaattgcta 553
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40 Glu Lys Val Gln Gln Tyr Thr Glu Arg Asp Arg Phe Leu Ser Val Ser
 35 40 45

45 Glu Ala Met Glu Phe Gly Leu Ile Asp Gly Val Leu Glu Thr Glu Tyr
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 60 <400> 23
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<210> 24
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gtaaggatct gagctacaca t 21

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